

TOWN OF HERNDON

Enriching the Quality of Life and Promoting a Sense of Community



MEMORANDUM

To: Mayor DeBenedittis and Town Council

From: Paul C. LeReche, Chairman of the Downtown Master Plan Steering Committee

Date: January 22, 2010

Subject: Downtown Master Plan Steering Committee Recommendation

The following attachments are provided in support of the committee recommendation:

1. Excerpts from Town of Herndon Market Analysis, Streetsense, Inc., November 2009
2. Summary of the January 6, 2010 Downtown Master Plan Steering Committee Meeting
3. Transportation and Preliminary Utility Constraints Memorandum to Chairman LeReche, December 28, 2009 (containing memoranda from VHB, Inc. and Bohler Engineering)
4. Draft Downtown Master Plan materials, Urban Design Associates, Dec 2009/Jan 2010:
 - a. Illustrative Plan Option A
 - b. Illustrative Plan Option B
 - c. Pines Shopping Center Plan Alternatives
 - d. Illustrative Plan Option (potential substitutions for Block F at Center and Vine Streets and for the area to the south side of Jefferson Street) (January 22, 2010)
 - e. Illustrative Plan Option Block Details (January 22, 2010)
 - f. Block I Section Comparison
 - g. Development Analysis Key (map with block names)
 - h. Herndon Downtown Development Analysis (spreadsheet with approximate development program and parking by block for Options A and B)

* * *

After several months of working to obtain a wide array of community input while exploring a full range of issues, the Downtown Master Plan Steering Committee has arrived at a recommendation. The framework for the committee's work was established through the extensive community involvement process and the technical reports from the consultant team that addressed market analysis, heritage structures, transportation, infrastructure for various utilities and other factors. These reports are available from the staff upon request. For your convenience, the executive summary and the key market principles from the Market Analysis report are Attachment #1. From the outset the committee sought to develop plans based in market realities. In summary, the consultant team did an excellent job of soliciting and ingesting a wide range of community input while developing plans responsive to a large majority of the comments received.

The planning process addressed the issue of heritage resources in a comprehensive way. As part of the consultant team, Frazier Associates re-evaluated the structures in the downtown relative to the period of significance and created a new hierarchy to rate the structures. The highest preservation priorities were incorporated into both of the major plan options. While the plans simply reflect preservation of some of the highest priority properties, other highly rated properties such as the Ashwell (Stohlman Subaru) car dealer building and the old Safeway (Robert's Carpet) are planned for adaptive re-use. Community input was reflected in these creative solutions. The complete study is available upon request (Herndon Downtown Master Plan Historic Building Evaluation, Frazier Associates, November 2009.)

I am pleased to report that the majority of the committee supports the Illustrative Plan Option A dated December 10, 2009 by Urban Design Associates, subject to consideration of the following modifications or options with regard to:

1. Block D: The committee majority in support of Option A was narrow with regard to this block. It appeared that at least one or possibly more members supported the land use as in Option A, but were undecided and did not vote in support of this scheme since the financial arrangement to implement the parking structure with a significant component of Town of Herndon public shared parking was not specified. Additional discussion on the potential funding of this parking structure appears below, in the third to last paragraph.
2. Block F (town land at Center/Vine/W&OD): the committee consensus was to support the Option B land use for this block, consisting of townhomes rather than the active senior multifamily housing shown on Option A; However, at the request of 4 undecided members the committee agreed to request that the consultant provide an alternative concept for high quality single family homes on small lots and indicated that the committee might find this option to be a desirable variation for this block.
3. The Pine Center block (including the land north of the shopping center to Jefferson Street): The committee supports a variation on the land use shown in Option A and also shown as Alternative 3 on the separate sheet of alternatives for the Pine Center. This would create high quality single family homes on small lots along Jefferson Street rather than townhouses, with recognition that these homes would require more land area. This would reduce the total footprint of Alternative 3 for parking decks and townhomes slightly and might cause one of the parking structures to increase in height --to go from a ground plus one level configuration at 10 feet in height to a ground plus two structure at 20 feet in height.
4. Block I: As the Meeting Summary details, the vote on this block was very close, with just one vote separating the two options and with two undecided members. The consultant has provided a section drawing to further illustrate and contrast the two options.
5. Block O: The committee favored the Option B treatment of this block, which was no change from existing conditions. The committee did not support the Option A concept of redeveloping the Jiffy Lube and Elden Street Service Center properties as part of this plan.

The Steering Committee did not reach a complete consensus on many of the blocks. See the meeting summary (Attachment #2) for a description of the committee's discussion and voting on specific blocks. In some cases members were comfortable with the land use shown on either of the major options while in others a minority opinion in dissent was strongly held by a few committee members. The process culminated on January 6, 2010 with the development of the consensus recommendation as described above, as requested by the Town Council in its original action establishing the committee. A few members of the Committee believed that a traffic impact simulation should have been available prior to the Committee vote but a majority of members were comfortable moving ahead based upon the summary memorandum which had been provided from consultant VHB, Inc., based on the simulation. The staff assured us that the simulation will be displayed and discussed during future public meetings, including the Planning Commission work session on January 25, 2009.

The development densities of Options A and B range well below a floor area ratio 1.0 across the entire downtown. Specific blocks run lower or higher in density. Estimates of total floor area of development are clear cut with regard to commercial uses, while translating the residential components from dwelling units into floor area is a subject of greater variability. A comparison of the three and ½ blocks included in the JPI development proposal of 2008 indicates that where the JPI proposal included development at a floor area ratio of up to 2.0, Option A could yield a total floor area ratio in the range of 0.96. Option B could yield a total floor area in the range of 0.55. Estimated floor area ratios for the redevelopment of the Pines Shopping Center and adjacent areas are 0.86 for Option A and 0.68 for Option B.

In any case, the plan options are far below the possible maximum density floor area ratio of 2.5 allowed by the current PD-D district within portions of the downtown, and a Comprehensive Plan Amendment and Zoning Ordinance Text Amendment will be necessary if the Town Council selects to approve the master plan. In addition, the consultants have suggested to the committee that changes to the ordinance should facilitate the approval process if the proposal meets the adopted master plan criteria. In addition, the total infrastructure burden on the developer should be considered relative to the moderate density allowed by the master plan. While other improvements such as enhanced streetscapes will continue to be requirements, public sector planning, design and possibly financial support for undergrounding of overhead utilities should be considered. Appropriate developer contributions could support a unified town-sponsored implementation to underground larger segments that are not limited to a single property frontage or a single block.

Another aspect of the master plan that the consultants discussed with the committee concerns the viability of the largest of the parking structures, the one shown on Block D, an area which includes land owned by the town and by Ashwell LLC. Discussions with the consultant indicate that the town may need to support this garage financially due to the relatively modest density of development included in the plan options. The staff has informed me that the Fairfax County Economic Development Authority staff has indicated interest in such a project, as the County tax base enhancement is potentially very sizeable. In addition to providing parking to support new development, the deck will include a minimum of 182 public shared parking spaces to replace parking on existing surface lots owned by the town. By paying for this garage or some significant portion of it as a bond project or through other means, the town and/or county would facilitate extensive redevelopment with long term benefits. Note that this parking deck is in a ground level plus three story configuration at approximately 30 feet in height. An additional level (or partial level) on this deck is recommended, since it would allow for some additional capacity for future public shared

parking contracts. An alternative to meet future capacity would of course be the establishment of an additional surface parking lot elsewhere within the downtown.

Although I believe that you will hear from individual members of the Committee as private citizens during the upcoming public process, please let me assure you that the Committee as a whole stands ready to assist the Planning Commission and Town Council during the review period whenever requested.

Please contact Senior Planner Dana Heiberg at 703-787-7380 or dana.heiberg@herndon-va.gov if you have any questions on these materials. I look forward to the discussion as the Downtown Master Plan moves forward to the Planning Commission and Town Council. Please note that important materials including the color perspective illustrations and various diagrams are available on the Town of Herndon website at Planning and Zoning. A DVD with video of the November 19, 2009 presentation by the consultant team is also available from the Community Development staff upon request.

Cc: Chairman Sivertsen and Members of the Planning Commission
Arthur A. Anselene, Town Manager
Elizabeth M. Gilleran, Director of Community Development
Dana E. Heiberg, Senior Planner
Robert B. Boxer, Director of Public Works
Dana Singer, Deputy Director of Public Works

[Excerpt from Town of Herndon Market Analysis, a report prepared by Streetsense, Inc., November 2009]



TOWN OF HERNDON MARKET ANALYSIS—Executive Summary

The Residential Market

There are two sectors of the multi-family housing market that are currently underserved in Herndon. First, there is a demand for senior housing, in the each of the active-adult, age-restricted, and assisted-living categories. Second, there is demand for housing for young professionals looking for a “sense of place.” There are thousands of young professionals in western Fairfax County and eastern Loudoun County, and many of them are looking for an affordable housing option that is more than just another sprawling and suburban apartment or condominium complex. Herndon has the ingredients in place to attract this type of residential tenant with its existing amenities in the downtown core. The selection of multi-family properties - both rental and condominium - in the primary trade area is limited, and a quality development with thoughtful planning and design in close proximity to downtown will attract this type of tenant, who has few other options. Overall, residential development in many different forms including single-family, townhomes, multi-family for-sale and rental, as well as live-work space, will be important to the downtown revitalization effort in Herndon because retail needs a built-in population to be viable. Various housing product types will capture varying tenant types, thus diversifying the consumer base downtown and increasing retail viability and demand. It is our opinion that there is a market for up to one thousand new multi-family units of these types over the next ten years.

The Office Market

Promoting small business development downtown should be one of the Town’s most important objectives and, as such, it should be willing to institute incentives and/or incubation programs to attract new tenants to the commercial core. However, it is important to note that downtown Herndon cannot and should not try to compete with its high-profile, regional Toll Road identity. Rather, the municipality should embrace the buildings along Herndon Parkway as a great revenue generator but not attempt to woo tenants away from them to downtown. On the other hand, there is a vast pool of professional service tenants that are located in sub-par buildings along Elden Street that should be targeted for relocation. The Town should make the building process as easy as possible for those willing to locate their businesses downtown—a “green-tape” municipal ideology should be adopted to the extent possible. In terms of development types, live-work space could be a viable residential/commercial alternative here, as long as it is well-located. Office condos may also be appropriate as the market stabilizes. Professional loft office above retail will remain a viable commercial office type in downtown Herndon, catering to professionals like doctors, lawyers, graphic designers, attorneys, real estate brokers, etc.

The Retail Market

Successful retail depends on a high concentration of people. While Herndon's population is strong, the amount of existing retail per capita is quite high, like our primary and secondary trade area polygons, which boast retail per capita figures of 34.81sf/person and 41.06sf/person, respectively. The national average for retail space per capita is 22-25sf/person. In order to compete, therefore, Herndon must either add retail to expand its trade area and generate more demand or reposition what's already there. Many offerings in the downtown core exist more because of low rents than because of a need for these services. Some of the retail that does not perform or work well should be weeded out. A market study paired with a detailed and focused retail merchandising strategy can help to determine which retail of these uses are superfluous, and can also identify opportunities for co-tenancy and synergy. These efforts will become the basis for a branding and placemaking strategy designed to increase awareness of downtown Herndon as a destination within the regional market. It is our opinion that an additional 70,000-100,000sf of retail/restaurant/entertainment space could be supported in Downtown Herndon over the next decade with incomes between \$25-35/sf NNN.

* * *

TOWN OF HERNDON MARKET ANALYSIS—Principles

RESIDENTIAL MARKET PRINCIPLES

There are two sectors of the multi-family housing market that are currently underserved in Herndon. First, there is a demand for senior housing, in the each of the active-adult, age-restricted, and assisted-living categories. Second, there is demand for housing for young professionals looking for a "sense of place." There are thousands of young professionals in western Fairfax County and eastern Loudoun County, and many of them are looking for an affordable housing option that is more than just another sprawling and suburban apartment or condominium complex. Herndon has the ingredients in place to attract this type of residential tenant with its existing amenities in the downtown core. The selection of multi-family properties—both rental and condominium—in the primary trade area is limited, and a quality development with thoughtful planning and design in close proximity to downtown will attract this type of tenant, who has few other options. Generally speaking, a variety of residential development types including single-family, townhomes, multi-family for-sale and rental, as well as live-work space, will be important to the downtown revitalization effort in Herndon. It is our opinion that there is a market for up to one thousand new multi-family units of these types over the next ten years.

Overall, we contend that:

1) Residential development in many different forms will be important to the downtown revitalization effort in Herndon because retail needs a built-in population to be viable. Various housing product types will capture varying tenant types, thus diversifying the consumer base downtown and increasing retail viability and demand.

2) Multi-family units that are platted as condo can be rented and converted at a later date, allowing for easier entry into the marketplace; as such, this could be a viable alternative here. In Virginia, this is a perfectly legal and precedent development model.

3) Live-work space could be a viable residential/commercial alternative here, but only in key, high visibility locations in the downtown core (unlike that planned as part of the Fortnightly project). Often times, live-work space is poorly located, causing it to fail. Authentic live-work space was the root of most American cities in the late 19th and early 20th centuries and remains a viable development type if executed properly.

4) The town should consider an active adult or age restricted community as a viable tenant for downtown. This type of user would provide a steady income flow for the municipality while providing another consumer base for downtown's shops, restaurants, and local businesses.

5) The town must embrace the family ideology of the community, offering for-sale single-family and townhome housing options close to the core, like what Stanley Martin is currently constructing.

6) The price point of some of the new residential development downtown should be moderate in order to attract a younger demographic that will patronize downtown establishments as well as the Town's many activities, concerts, markets, etc. You must be priced competitively in order to vie for the attention of this demographic, who are usually interested in greenfield apartment communities because of their relatively limited resources.

OFFICE MARKET PRINCIPLES

Overall, we contend that:

1) Downtown Herndon cannot and should not try to compete with its high-profile, regional Toll Road identity.

2) The municipality should embrace the buildings along Herndon Parkway as a great revenue generator but not attempt to woo tenants away from them to downtown. There is a vast pool of professional service tenants that are located in sub-par buildings along Elden Street that should be targeted for relocation.

3) The Town should institute incentives and/or incubation programs to attract tenants to locate their businesses downtown. Promoting small business development downtown should be one of the Town's most important objectives.

4) The Town should make the building process as easy as possible for those willing to locate their businesses downtown. A "green-tape" municipal ideology should be adopted to the extent possible.

5) Live-work space could be a viable residential/commercial alternative here, as discussed in the previous section, as long as it is well-located. Office condos may also be appropriate as the market stabilizes. Professional loft office above retail will remain a viable commercial office type in downtown Herndon, catering to professionals like doctors, lawyers, graphic designers, attorneys, real estate brokers, etc.

6) New businesses should be clustered near the commercial core to support local businesses.

RETAIL MARKET PRINCIPLES

Successful retail depends on a high concentration of people. While Herndon's population is strong, the amount of existing retail per capita is quite high, like our primary and secondary trade area polygons, which boast retail per capita figures of 34.81sf/person and 41.06sf/person, respectively. The national average for retail space per capita is 22-25sf/person. In order to compete, therefore, Herndon must either add retail to expand its trade area and generate more demand or reposition what's already there. Many offerings in the downtown core exist more because of low rents than because of a need for these services. Some of the retail that does not perform or work well should be weeded out. A market study paired with a detailed and focused retail merchandising strategy can help to determine which retail of these uses are superfluous, and can also identify opportunities for co-tenancy and synergy. These efforts will become the basis for a branding and placemaking strategy designed to increase awareness of downtown Herndon as a destination within the regional market. As indicated by the demand analysis included on the previous page, we contend that an additional 70,000-100,000sf of retail/restaurant/entertainment space could be supported in Downtown Herndon over the next decade with incomes between \$25-35/sf NNN.

Overall, we contend that:

- 1) An increased critical mass of retail in downtown Herndon can only be achieved once more people live and work downtown—retail follows people, not the other way around.
- 2) The Town must develop a strong tenant retention and recruitment program. There are some quality retail tenants located outside of downtown along Elden Street in sub-par environments. Like office tenants, they should be targeted for relocation downtown. Incentives and/or incubation programs will be important in achieving this objective.
- 3) Meaningful, contributing historic buildings should be converted into commercial space when appropriate and if possible. Some structures that are considered "historic" by the town, however, do not add to the built environment and could be replaced by a more modern, efficient, and successful building/use.
- 4) The Town should develop and implement a clear merchandising strategy for Downtown Herndon that is more heavily geared toward service/dining/entertainment/specialty retail than industrial/automotive uses.
- 5) Implement a building facade treatment program to support tenants' image.
- 6) The Town should play off the W&OD Trail and the strength of existing community programming as amenities.
- 7) The Town should develop a comprehensive branding strategy for the town as well as for retailers themselves. Cross-marketing and promotion will be key, as will a "green-tape" process for approvals.

**DOWNTOWN MASTER PLAN STEERING COMMITTEE
MEETING SUMMARY
WEDNESDAY, JANUARY 6, 2010
7:00 P.M.**

Attendees:

Paul C. LeReche, Chair
Doug Downer, downtown business owner
Tim McGrath, downtown business owner
Stephanie Gosnell, downtown residential owner
Aubrey Stokes, downtown residential owner
Dennis "Butch" Baughan, at-large representative
Philip Brooks, at-large representative
Helen A. Lyman, at-large representative
Robert B. Walker, ARB/HPRB representative
Kevin Moses, Alternate Planning Commission representative
Elizabeth M. Gilleran, Director of Community Development
Dana E. Heiberg, Senior Planner

Absent:

Kevin J. East, Planning Commission representative

Consultant:

Jon Eisen, Managing Principal, Streetsense

1. The Chair and staff extended the thanks of the town to the committee members for their effort, time, ideas, concerns and feedback as a result of their review of the Downtown Master Plan information prepared by the consultant. It was noted that the consultant was present to respond to any questions from the committee during this meeting and to review parking structure strategy in answer to the concerns of one committee member. The consultant efforts are to be commended.
2. The results of the traffic analysis by VHB and the Preliminary Utility Constraints were reviewed by staff. In summary, the report noted that traffic density modeling of important intersections for Option A indicate volumes less than projected by the 2003 study. There are no major utility constraints associated with the level of density of the plan options.
3. A summary of Floor Area Ratio (FAR) totals for each scheme was presented by town staff and the difference in building area totals and number of housing units and type were presented and discussed. It was noted that the existing Comprehensive Plan provides an FAR of up to 2.5 for Sector 2 of the downtown and up to 2.0 for the Pines. Both Option A and Option B have density that is well below 1.0 in total FAR across the downtown. Staff also compared the 3 and ½ blocks included in the JPI proposal. Where JPI had proposed up to 2.0 FAR, Plan A has an FAR estimated at .96 and Plan B has an FAR estimated at .55 on these specific blocks.

The approximate areas, housing types and parking spaces for each scheme are as follows:

	Option A	Option B
Estimated FAR*	.91	.55
Townhouse Units	86	192
Apartment Units	404	0
Office SF	23,400	52,000
Retail SF	147,250	107,900
Civic SF	12,000	21,500***
Hotel Rooms	150	0
Parking Spaces**	1840**	1022**

*Assumptions have to be made for unit sizes for residential dwellings to create an overall Floor Area Ratio for a mix of residential and commercial. Residential density is otherwise stated in dwelling units rather than gross square feet like commercial development. The assumptions are available.

**Does not include garage parking spaces in townhomes

***includes 5,000 sf “community center” mainly for townhouse community

4. A committee member requested a demonstration of the traffic flow computer model for Option A. This will be scheduled for the 1/25 Planning Commission work session, so that the simulation can be viewed by all. It was noted by staff that this study was demonstrated to the town in 2003 for a density that was greater than the density proposed by Option A or Option B.

5. The committee members were requested to comment on any of the materials that have been distributed by the consultants for their review. One committee member sought confirmation that the consultant considered single family homes for inclusion in the Master Plan development. The consultant response was that they did consider SF-D as a housing stock but felt that this was not the best use for land central to the downtown. The consultant did offer to look into the possibility of combining “Carriage House” designs north of the Pine Shopping Center with some retail facing Elden Street. [Staff note: The term “carriage house” was used by the committee but it appeared to staff that the intent was not to refer to small accessory dwelling units as the term is defined by the American Planning Association and other publishers.]

6. Both design schemes were reviewed on a block by block basis starting with Block A and going through Block O. The four different design schemes for Pine Shopping center and the Hanes Paving lot were discussed separately. The committee members were asked for their comments and vote for each block. They were requested to vote for Option A, Option B or an alternate design they would like to see implemented. The goal was to reach for majority consensus on recommended options for each block or to identify blocks that needed further study. Some of the Block designs were identical in both Options A and B and are noted as * to indicate no change and no objection or additional comments by the committee members for the indicated use.

7. The votes cast by the committee members by block are as follows:

	Option A	Option B	Undecided
Block A	*	*	
Block B	*	*	
Block C	8	2	1

Block D	5	3	3
Block E	7	1	3
Block F	2	5	4
Block G	*	*	

	Option A	Option B	Undecided
Block H	7	1	3
Block I	5	4	2
Block J	8	2	1
Block K	*	*	
Block L	*	*	
Block N	*	*	
Block M	*	*	
Block O	8	2	1

Block F along Center Street raised some concerns as to the density adjacent to the SF-D lots. The consultant offered to look into the possibility of adding “Carriage House” designs as a third scheme. [Staff note: The term “carriage house” was used by the committee but it appeared to staff that the intent was not to refer to small accessory dwelling units as the term is defined by the American Planning Association and other publishers.] Additionally, it was noted that development on Block I must be sensitive to the adjacent SF-D homes. Alternative building sections for each scheme at this location will be developed.

The Pine Shopping Center: Plan Alternatives sheet has 3 options shown along with existing conditions. A 4th alternative was requested by the committee to combine Alternative 3 with Carriage House designs rather than townhouses along Jefferson Street to create Alternative 4. The votes cast are as follows:

Existing	Alt 1	Alt 2	Alt 3	Alt 4 (modified Alt 3 with carriage homes)
1	1	0	6	3

Illustrative Plan Option A shows the mixed use development for the Pines (Alt 3) Illustrative Plan Option B shows a townhouse community (Alt 2)

8. In general the Steering Committee members felt the consultants did a satisfactory job of capturing the desires of the community by providing a workable plan for the moderate development of the downtown. The members acknowledge the need to consolidate the retail and office uses to the central core serviced by accessible and easily reached walking routes and to support this development with adequate residential density in order for the downtown to prosper. It was generally agreed that the existing downtown area had far too many vacant, underutilized, and unsightly properties that hurt the general character of the town, the quality of life for its citizens and the value of their property.

9. The committee members were invited to continue their involvement in the Downtown Master Plan by attending the next Planning Commission Work Session scheduled for 1/25/10 where the traffic study and computer simulation will be shown. Additionally, it was stressed that their participation

through the remainder of the Downtown Master Plan review and approval process by the Town Council would be appreciated and important to achieving a long range plan that will be embraced by a majority of Herndon's citizens.

The Meeting Adjourned at 10:10PM

TOWN OF HERNDON

Enriching the Quality of Life and Promoting a Sense of Community



MEMORANDUM

To: Chairman LeReche and Members of the Downtown Master Plan Steering Committee

From: Dana E. Heiberg, Senior Planner

DEH

Date: December 28, 2009

Subject: Transmitting Transportation Memorandum and Preliminary Utility Constraints

The subject materials provide an evaluation of the infrastructure implications of Illustrative Plan Option A and Illustrative Plan Option B. Recall that the illustrative plans and related materials were provided to committee members with a memorandum dated December 14, 2009.

The attached memorandum from the town's transportation consultant VHB, Inc. concludes that either option will generate lower amounts of traffic than a previous build-out scenario created for the 2003 Downtown Traffic Study. Staff and others sometimes refer to this study as "the CORSIM model", which is the name of the simulation software sponsored by the Federal Highway Administration.

The attached memorandum from Bohler Engineering (part of the team led by Urban Design Associates) explores various specific utility capacity issues that need further study. The memorandum states that adequate capacity for the next 10-20 years is anticipated based on the current comprehensive plan ("current Town Master Plan"). Note that Plan Options A or B are less dense than what is theoretically possible under the current 2030 Comprehensive Plan and PD-D zoning district. In reference to the statement on the fourth page recommending a separate study in regard to the issue of placing parking structures and other development above the twin 9 foot by 5 foot box culvert (known as the Spring Branch culvert), please note that plans developed in previous years have assumed development above this structure. This assumption dates to the original construction in the early 1990s, as plans for significant development were envisioned at that time and the original engineer provided documentation in regards to the need for appropriate structural bridging to support such vertical development. Parking structures are a compatible form of development, since they allow for manhole access to the culvert from the ground level. Both of the plan options keep most of the area on Block D that is above the culvert open and free of buildings. Both plan options also include a parking structure on Block C above the beginning portion of the culvert.

Please contact me at 703-787-7380 or dana.heiberg@herndon-va.gov if you have any questions.

Attachments: 1. Memorandum from VHB Inc, December 24, 2009;
2. "Preliminary Utility Constraints" from Bohler Engineering, December 17, 2009

Cc: Elizabeth M. Gilleran, Director of Community Development
Robert B. Boxer, Director of Public Works
Dana Singer, Deputy Director of Public Works
Dave Kochendarfer, Deputy Director of Public Works
Mark Duceman, Transportation Program Manager



Memorandum

To: Mark Duceman & Dana
Heiberg,
Town of Herndon

Date: December 24, 2009

Project No.: 37908.16

From: Chris Gay, AICP
Dibu Sengupta, PE

Project Name: Herndon Master Plan Update 2009
CORSIM Analysis

Introduction

The Town of Herndon is preparing the "Downtown Master Plan and Marketing Study" and VHB was tasked with updating the existing Herndon Downtown CORSIM model for two sets of plans – Master Plan Option A and Master Plan Option B.

This memorandum provides a summary of the analysis results.

Methodology

Land use development scenarios associated with each of the two Master Plan Options in the downtown Herndon area were obtained from Urban Design Associates (UDA). In addition, the Town of Herndon provided updated background land use data. Both land use scenarios encompass the entire Herndon Downtown area, as shown in Figure 1. The UDA conceptual plans for Option A and B are shown in Figure 2.

The forecast land use data by block under each scenario were used to develop AM and PM peak hour traffic projections for the study area. All traffic projection parameters including existing volumes, growth factors, capture rates and trip distribution were kept the same as was used in the earlier 2003 study. To account for development that occurred since the 2003 study, background developments that have happened since then were added to the new site trips under each scenario.

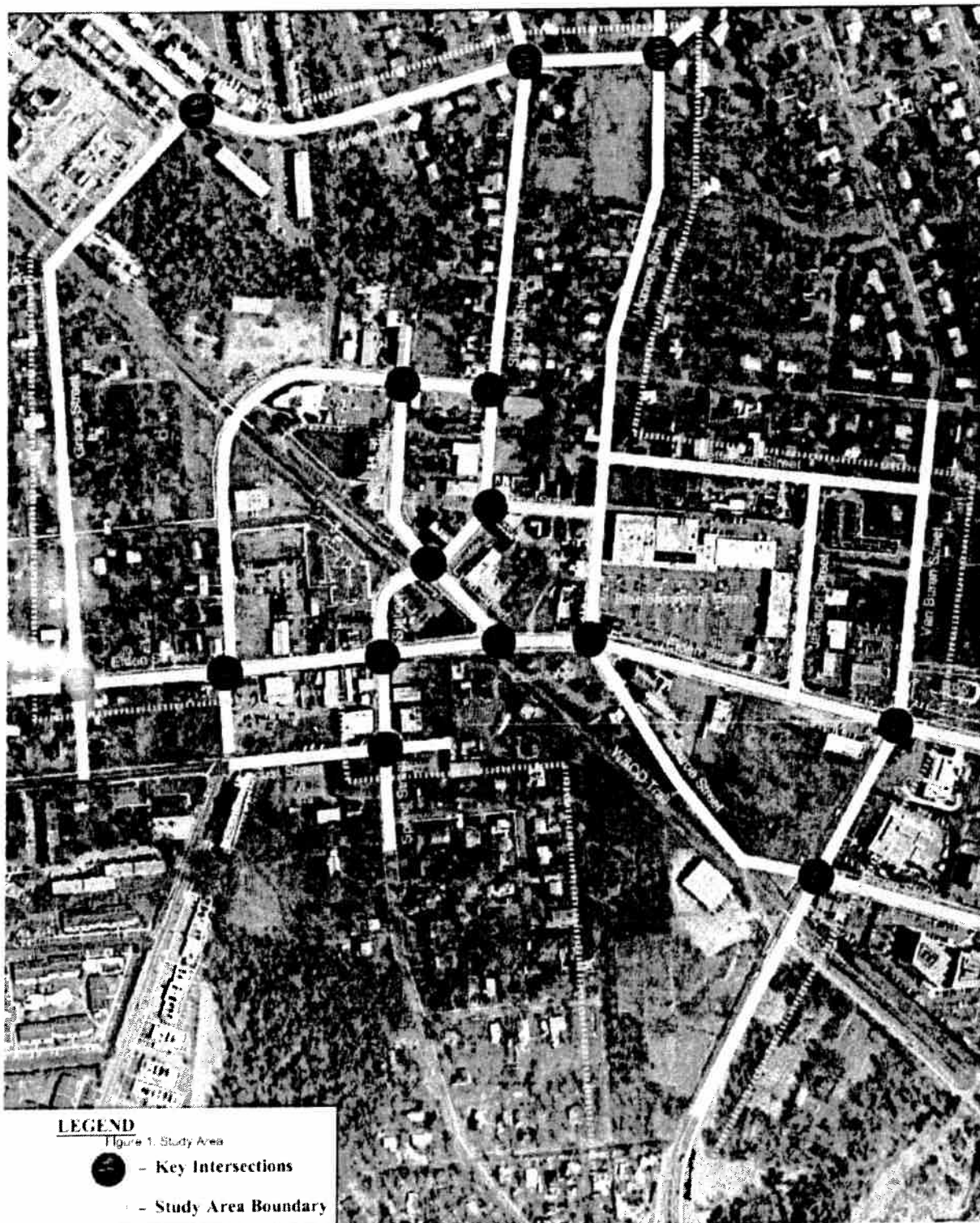
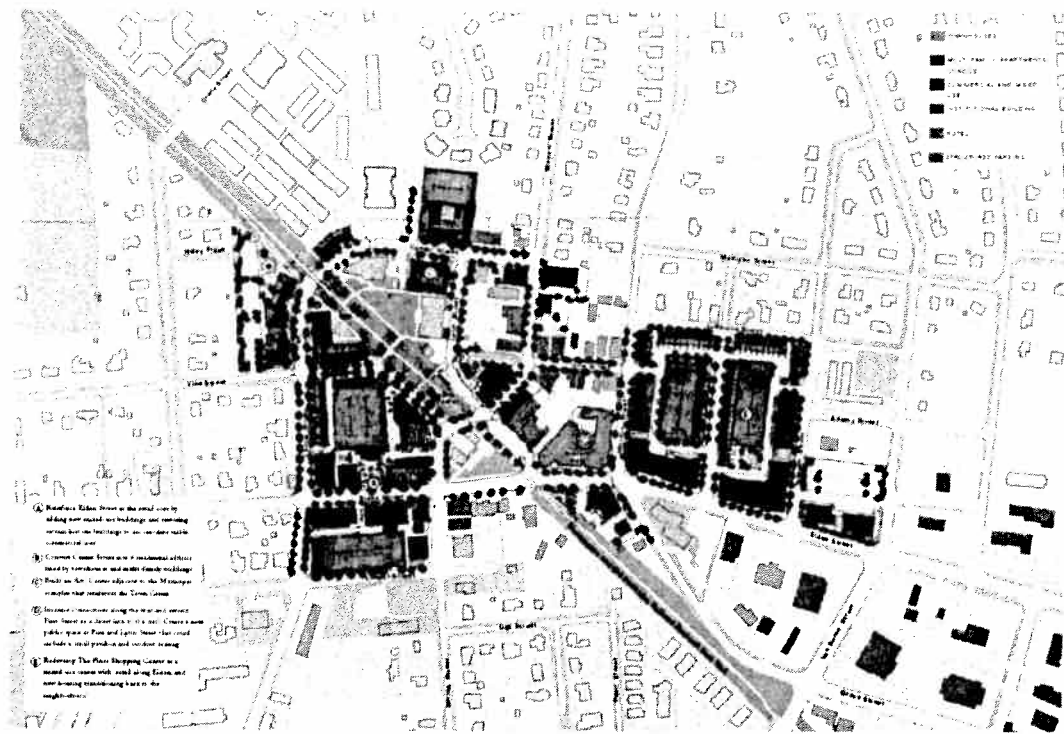


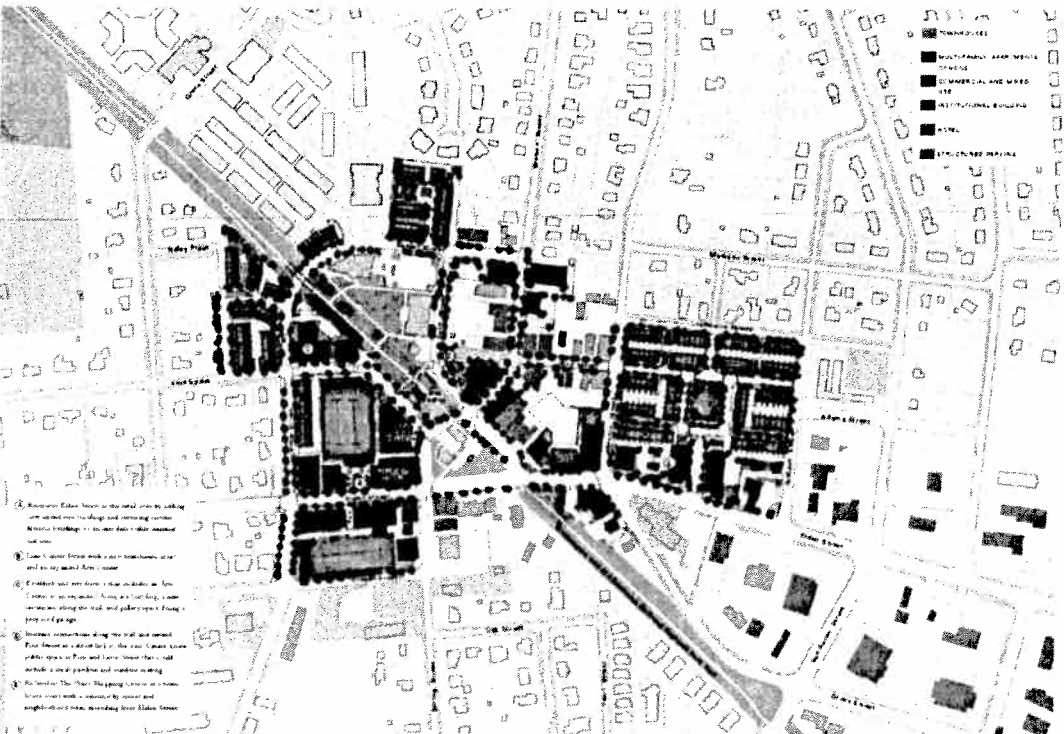
Figure 1: Study Area



DRAFT

URBAN DESIGN ASSOCIATES
10 DECEMBER 2009

Illustrative Plan: Option A
Downtown Herndon Master Plan | Herndon, VA



DRAFT

URBAN DESIGN ASSOCIATES
10 DECEMBER 2009

Illustrative Plan: Option B
Downtown Herndon Master Plan | Herndon, VA

Figure 2: Downtown Master Plan Options A and B

Trip Generation

AM and PM trip generation estimates were calculated for each of the two Master Plan Options, which replaced the projected trip generation estimates from the 2003 study. Table 1 below shows the total trips generated from the two options. Detailed trip generation by block is attached in the Appendix.

Table 1: Trip Generation for Downtown Development Blocks

Trips	Total Trips - Option A		Total Trips - Option B	
	AM	PM	AM	PM
Total	1080	1650	793	1257

Analysis

The CORSIM model developed for the 2003 study was used as the basis for analysis of the current land use scenarios. To account for changes in the study area since the time that model was developed, the following changes were incorporated into the model:

- The intersections along the Elden Street corridor were updated to function as coordinated signals with cycle lengths, offsets and other signal parameters obtained from the Town.
- The newly constructed signal at the intersection of Elden Street, Lynn Street and the W&OD Trail crossing was incorporated into the model.
- Site entrances for the proposed Diamond Properties were incorporated along Lynn Street and Monroe Street.

Results

Analysis was performed on the AM and PM peak hours for both Options A and B. The Level of Service (LOS) and delay results for the four major signalized intersections along Elden Street are shown below:

Table 2: Level of Service (LOS) for Key Intersections

Peak Hour	Alternative	Delay / Level of Service	Elden Street			
			Station St/ Spring St	Lynn St	Monroe St	Van Buren St
AM Peak Hour	Option A	Delay (sec/veh)	9.8	10.8	14.6	23.6
		LOS	A	B	B	C
	Option B	Delay (sec/veh)	7.8	12.3	15.9	24.7
		LOS	A	B	B	C
PM Peak Hour	Option A	Delay (sec/veh)	9.6	11.6	25.0	29.2
		LOS	A	B	C	C
	Option B	Delay (sec/veh)	10.4	12.8	25.9	27.8
		LOS	B	B	C	C

The results indicate that both Options A and B perform at similar levels of service throughout the study network and all key intersections along Elden Street perform at overall acceptable levels of delay and level of service. Option B has fewer trips as compared to Option A, but the effect of the trips as they get distributed over the network results in similar operations.

Elden Street is the major corridor in the study area and carries the maximum traffic during the peak hours. Some of the problem areas noted during the simulation of Option A are as follows:

AM Peak Hour

- Elden St and Grace St – Signal related queuing occurs on the eastbound and westbound approaches of Elden St.
- Elden St and Lynn St – Frequent spillback on the eastbound approach of Elden St. beyond Station St and frequent spillback on the westbound approach of Elden St. beyond Monroe St.

PM Peak Hour

- Elden St. and Van Buren St. – Northbound shared through/right lane queues up frequently beyond the nearest driveway, while the exclusive left lane is underutilized. The eastbound approach has queues of through/left turning vehicles, up to the nearest shopping center entrance. Right turn lane remains underutilized.
- Elden St. and Monroe St. – The westbound approach queues up beyond the nearest driveway while the exclusive left turn lane remains underutilized.

- Elden St. and Lynn St. – Eastbound approach queues up beyond Station Street and the westbound approach queues up beyond Monroe St. The queuing on the westbound approach is aggravated by actuation of the W& OD trail crossing signal.

Table 3 summarizes the “hot-spot” or problem areas that were noted during the analysis. “Hot-spot” areas were demarcated to locations if they displayed heavy queuing or delays during the peak hour simulation. Option A results were used in the table since this option had the highest traffic volumes and represents the worst case scenario. Potential minor spot improvements are suggested to alleviate some of these issues. The table suggests improvements that could be incorporated in the field without significant cost – for example, restriping approaches and changes to the signal timings.

Table 3: Study Area Spot Improvements

Street Approach	Type	Worst Case Delay (sec/veh)	Approach Level of service (LOS)	Queue Length		Potential Spot Improvements
				Avg. (veh)	Max. (veh)	
NB Van Buren @ Elden St	s	47.0	D	6	19	Restripe NB approach to one left turn lane, one through lane and one right turn lane. Provide one receiving lane on SB Van Buren. Change phasing on Van Buren St to leading left turns and permissive through/right
SB Van Buren @ Elden St	s	48.5	D	2	6	
WB Elden @ Monroe St	s	24.7	C	6	20	Restripe WB approach to one left turn lane, one through lane and one right turn lane. Provide one receiving lane on EB Elden St. Change Monroe St phasing - leading left turns and permissive through/right
NB Monroe @ Elden St	s	41.9	D	2	13	
SB Monroe @ Elden St	s	49.9	D	3	11	
NB Spring St. @ Elden St	s	55.9	E	2	8	Investigate possibility of restriping NB and SB approaches to left/through lane and right turn only lane. Right turn overlap could then be introduced in the signal phasing.
SB Station @ Elden St	s	37.2	D	1	6	

Note: s-signalized, u-unsignalized

Summary

The two options A and B were analyzed using the Downtown CORSIM model using land use forecasts by block developed by the Town’s consultant, UDA. The analysis showed that, except for a few locations along the Elden Street corridor that have queue spillback issues and LOS greater than “D”, most of the intersections in the study area will perform at acceptable levels of service. For intersections that do display high

approach delays, minor improvements have been suggested to improve operations (refer to Table 3).

When comparing these latest development scenarios to the ones that were developed for the 2003 Downtown Study, it was observed that the two Master Plan Options produce fewer trips than the 2003 Scenario B. In particular, neither of the new options reaches the “maximum density” buildout traffic levels that Scenario B of the 2003 Downtown Study had analyzed. Therefore, the “grid-lock” conditions (especially around Elden St and Van Buren St) that were observed in the 2003 model are not observed in these latest models.

Appendix

Trip Generation by Block

Block in 2009 Plans	Option A		Option B	
	Total Trips - 2009 Plan		Total Trips - 2009 Plan	
	AM	PM	AM	PM
SOUTH F	43	62	19	21
SOUTH E	43	62	46	66
SOUTH D	128	215	156	259
SOUTH C	84	199	78	174
SOUTH A SOUTH B NORTH N	7	11	7	11
NORTH K	22	28	15	21
NORTH M	275	343	218	281
NORTH J	7	11	7	11
NORTH I NORTH G	102	128	41	43
PINE CTR	161	260	70	125
NORTH O	20	29		

Final Development Scenarios

Illustrative Plan: Option A

Townhouses	Apt Units	Parking	Office	Parking	Retail	Parking	Chc	Parking	Hotel	Parking	Committed Parking	Total Parking	Provided Parking	Structured Deck	Levels	Height (approx.)*
South A		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South B		60	108	0	32000	182	0	0	0	0	0	300	300	Ground + 2	20 feet	300
South C		22	0	23400	82	26200	157	0	0	0	182	421	421	Ground + 3	30 feet	570
South D		80	144	0	0	0	0	0	0	0	0	144	144	0	0	0
South E		80	80	0	0	0	0	0	0	0	0	80	80	0	0	0
South F		22	220	332	23400	82	58200	349	0	0	0	182	945	945	0	0
Subtotals		7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North G		80	144	0	0	0	12000	36	0	0	0	36	36	144	Ground + 1	10 feet
North H		0	0	0	0	0	0	0	0	0	0	0	0	144	Ground + 1	10 feet
North I		0	0	0	0	0	0	0	0	0	0	0	0	28	0	17
North J		0	0	0	4800	29	0	0	0	0	0	28	28	58	53	53
North K		0	0	0	9600	58	0	0	0	0	0	58	58	0	0	0
North L		0	0	0	0	0	0	0	0	0	0	0	0	192	2	Below Grade
North M		0	0	0	12850	42	0	0	0	150	150	192	192	0	0	0
North N		0	0	0	4800	29	0	0	0	0	0	29	29	109	109	109
North O		7	80	144	0	0	45050	236	18500	36	150	0	488	518	518	518
Subtotals		57	104	187	0	44000	220	0	0	0	0	487	487	480	Ground + 1	10 feet (each)
Pine Center		86	404	663	23400	82	147250	885	18500	36	150	182	1840	1943	1943	1943
Total		17	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Illustrative Plan: Option B

Townhouses	Apt Units	Parking	Office	Parking	Retail	Parking	Chc	Parking	Hotel	Parking	Committed Parking	Total Parking	Provided Parking	Structured Deck	Levels	Height (feet)
South A		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South B		0	0	18000	63	32000	182	0	0	0	0	255	255	359	Ground + 2	20 feet
South C		22	0	19400	88	24200	145	4500	14	0	182	409	409	458	Ground + 2	20 feet
South D		0	0	0	0	2500	15	12000	36	0	0	51	51	60	60	60
South E		28	0	0	0	0	0	0	0	0	0	0	0	795	795	795
Subtotals		50	0	0	37400	131	58700	352	18500	50	182	715	715	715	715	715
North G		7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North H		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North I		29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North J		0	0	0	4800	29	0	0	0	0	0	28	28	17	17	17
North K		0	0	0	9600	58	0	0	0	0	0	58	58	53	53	53
North L		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North M		0	0	15000	53	15000	50	0	0	0	0	102	102	102	1	Below Grade
North N		0	0	0	0	4800	29	0	0	0	0	29	29	0	0	0
North O		36	0	0	15000	53	34200	165	0	0	0	217	217	172	172	172
Subtotals		106	0	0	52400	183	107900	592	5000	15	0	90	90	40	40	40
Pine Center		192	0	0	52400	183	107900	592	21500	65	0	182	1022	1007	1007	1007
Total		17	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Scheme A Scheme B

Townhouses 86 192
 Apartments 404 0
 Office 23400 52400
 Retail 147250 107900
 Chc 16500 21500
 Hotel 150 0
 Parking 1943 1007

* from lowest point at grade

Herndon Downtown Master Plan and Market Study – Preliminary Utility Constraints

As part of the planning process of the Herndon Downtown Master Plan and Market Study, Bohler Engineering has prepared the following review of utility constraints in the Downtown Study Area. This process included interviewing the Town Department of Public Works and Planning Staff to identify any public utility infrastructure constraints that may have an affect on the Study Area. These constraints are depicted on the attached Preliminary Utility Constraints – Illustrative Plan Option A and Option B. The Staff also recognized a desire by the public to relocate certain private utilities underground.

Option A considers 86 townhomes, 404 apartments, 23,400 square feet of office, 147,250 square feet of retail, 16,500 square feet of civic use, 150 hotel rooms, and 1,943 parking spaces. Option B considers 192 townhomes, 52,400 square feet of office, 107,900 square feet of retail, 21,500 square feet of civic use, and 1,007 parking spaces. However, as most of the additional development will occur vertically, there are minimal differences to utility relocation costs between each Option. The Town will separately provide analysis of potential system capacity issues based on discussions with Town Staff. Below is a summary of our findings:

Water

The Town of Herndon operates their water distribution system through the Department of Public Works (DPW). The existing system, supplied by the Fairfax County Water Authority (FCWA), is contracted at a capacity of 4.7 Million Gallons per Day (MGD).

Typical easement width for public water mains is 15 feet. The easement width varies depending on pipe size and depth. Redevelopment will need to consider the constraints of these easements on individual Study Areas.

Current Capacity

DPW Staff anticipates the current water supply should be adequate for the next 10-20 years based on the current Town Master Plan. As water quality is a primary concern, Herndon is the first jurisdiction in Northern Virginia to be certified under the newly established EPA water quality guidelines. Staff indicated that fire suppression is adequate under the current Master Plan Development Density. Irrigation demand, the primary user being the Herndon Golf Course serviced by the Vine street Irrigation Well #1, poses an impact on the Town's water capacity.

Proposed Improvements

In order to reduce maintenance costs and increase efficiency, improvements to the water system are online, which includes new water tanks. Other proposals include replacement of existing Polyvinyl Chloride (PVC) water mains and newly relocated water mains with Ductile Iron Pipe (DIP). This is desirable due to maintenance and system efficiency. The most important new public main identified by Staff is a proposed 12" line on Center Street, between Vine Street and Lynn Street.

Master Plan Analysis

Option A may require the relocation of a water main running west to east in the Pine Center Shopping Center. The developer of this property should be required to relocate the main. This same relocation does not appear necessary in Option B.

Pine Street is proposed to be extended to Lynn Street in both Options. The developer of these properties should be required to extend water service in this new public right of way as this area develops in either Option.

Master Plan Options A and B would require the replacement of Irrigation Well #1 based on the Illustrative Plans' depiction of a proposed parking lot. A location for a new well on Town land has already been identified in a previous Town sponsored study. This relocation should be the responsibility of the parcel's developer.

Town DPW Staff indicated that it will be their responsibility to analyze water availability and pressure utilizing the recently completed Geographic Information System (GIS) mapping of the Town's public water facilities. DPW Staff also indicated the Master Plan should require use of Ductile Iron Pipe (DIP) for all new relocated water mains for all redevelopment.

Due to the costs of replacing public PVC water mains with DIP, it may be desirable to require developing properties to pay a portion of the overall cost based on property frontage. The benefits of such a coordinated utility relocation include minimizing the disturbance to downtown traffic and the diversification of the costs among various owners.

No other significant public water main relocations are noted as a result of the Master Plan redevelopment. As each Study Area redevelops, minor alterations to the existing public system and relocation of existing on-site private mains should be facilitated by the developer.

As the Downtown Area redevelops, the percentage of greenspace recommended by the Master Plan will determine the demand for irrigation water. Careful consideration should be made to reduce irrigation in the Study Area. Recommendations could include drought tolerant landscaping and water efficient drip irrigation systems.

Sanitary Sewer

At present, the Department of Public Works (DPW) sewer collection system is contracted at 3.0 MGD flow with Fairfax County. This level of service is adequate for today's density. Fairfax County is contracted with Washington Area Sanitary Authority (WASA) for treatment. These treatment fees are passed onto the Town through the current agreement.

Town Staff indicated the two development scenarios that are presented for approval will be analyzed for their impact on existing system capacity. Alternate sources of funding of additional sanitary sewer capacity from the redevelopment of downtown may be desirable.

Typical easement width for public sewer mains is 15 feet. This easement width varies depending on pipe size and depth. Redevelopment will need to consider the constraints of these easements on individual Study Areas.

Current Capacity

System capacity is breached during the rainy season due to rainwater infiltration into the sanitary sewer. Sewer capacity and usage fees have increased recently based on new Federally Mandated treatment standards, the costs of which have been conveyed from WASA to the Town.

Proposed Improvements

The Town has initiated Inflow and Infiltration Studies to identify problematic mains in order to decrease system flows and treatment fees. Staff indicated the areas of concern are outside of the Master Plan area.

Master Plan Analysis

Either Development Option may require relocation of two (2) east to west sewer mains in the Pine Center Development Area. There should be available space with either Development Option for the developer to accommodate this relocation.

Either Development Option may require relocation of a north to south sewer main in Study Areas C and D. This is due to proposed construction directly above the

existing sewer main and related maintenance concerns. The developer should be required to relocate these sewer mains.

No other significant public sewer main relocations are noted as a result of the Master Plan redevelopment. As each Study Area redevelops, minor alterations to the existing public system and relocation of existing on-site private mains should be facilitated by the developer.

Storm Sewer

The Town of Herndon operates their storm sewer collection system through the Department of Public Works (DPW). The Town is permitted for stormwater discharge with the State by an individual Municipal Separate Storm Sewer System (MS4). DPW staff indicated that the current permit was properly maintained with the State based on current code. Typical easement width for public storm sewer mains varies from 10-25 feet. The easement width varies depending on pipe size and depth. Redevelopment will need to consider the constraints of these easements on individual Study Areas.

Current Capacity

The Downtown Planning Area main storm sewer is conveyed by a south to north twin 9' by 5' box culvert. No significant improvements to the existing storm system were necessary according to Town Staff based on the current Town Plan and State codes.

Proposed Improvements

New State regulations related to stormwater quality and quantity treatment are expected to be adopted in mid 2010. These will have an impact on the Town's current State Stormwater Discharge Permit. New regulations affecting the Total Maximum Daily Loads (TMDLs) are expected within the next 12 months.

Master Plan Analysis

The existing twin 9' by 5' box culvert is impacted by the proposed parking garages on Study Areas C and D as depicted. To avoid considerable expense in relocating these box culverts, the parking garages or other proposed structures should not encroach on the areas directly above the culverts. If unavoidable, the design and construction of the parking garages may be able to take into account the need to maintain these culverts. Careful evaluation of all options should be considered. A separate study on the feasibility of constructing over the culverts is highly recommended.

No other significant public storm sewer relocations are noted as a result of the Master Plan redevelopment. As each Study Area redevelops, minor alterations to

the existing public system and relocation of existing on-site private mains should be facilitated by the developer.

New State Stormwater Management regulations should be considered in the proposed Master Plan. It may be desirable to offset some of the impact of the new regulations on existing Town infrastructure by the requirement of redevelopment contributions for system improvements. Master Plan language to require design elements including, but not limited to, Low Impact Development, LEED Design, Green Roofs, or Rainwater Cisterns, may be one potential avenue to alleviate the costs associated with new Stormwater regulations.

Private Utilities

Town DPW Staff deemed the current level of service of Electric, Gas, Telephone, Cable, and Fiber Optic in the Downtown Planning Area as adequate. All of the private and underground utility lines were not provided for review and therefore, not included in this study.

Citizen feedback recommends the relocation of downtown overhead electric lines underground. Richter and Associates has been contracted by the Town to study a portion of the Elden Street Corridor to eliminate several existing poles. This study was reviewed and received positively by Town Council as recently as November 3, 2009. Approval of this study for construction could be as soon as March 2010.

Due to the costs involved in relocation, it may be desirable to require redeveloping properties to pay a portion of the overall cost based on property frontage. The benefits of such a coordinated utility relocation include minimizing the disturbance to downtown traffic and the diversification of the costs among the various owners.

Options A and B should have minimal impact on the existing private utility networks except for private on-site lines. Most existing private utility mains are located in the public right of way. The only right of way extension proposed with Master Plan Options A and B is the extension of Pine Street to Lynn Street. It should be expected for new private utilities to be installed in this right of way. Costs of these installations should be handled by the developer and the respective utility company.

Recommendations and Conclusions

Based on the Preliminary Utility Constraints and the two (2) Development Options from the Master Plan, the potential for large costs related to utility relocations can be appropriately shared if solutions are properly planned. The following recommendations are worthy of further study in order to assist in that planning effort:

1. The Town should reduce infiltration in the sanitary sewer system to increase existing capacity.
2. The Town should anticipate improving the quality of its stormwater runoff to meet the State of Virginia's new stormwater regulations.
3. The Town should avoid allowing further development over the twin 9' by 5' box culvert without significant evaluation.
4. The Town should evaluate the desire to add greenspace versus the impacts irrigation demand will have on the Town's water supply.
5. The Town should require the elimination of overhead utilities within the Study Areas excluding the overhead Dominion transmission lines.
6. The Town should evaluate the extent of conflicts between the underground private utility network and the Study Areas.

Legend

- Downtown Masterplan Boundary
- Development Analysis Areas
- Water - Pressurized Main
- Water - Sanitary Line
- Sewer - Gravity Main
- Storm - Gravity Main
- Proposed Buildings
- Flood Area
- Existing Buildings



Legend

- Overlaid Masterplan Boundary
- Development Analysis Areas
- Water - Pressurized Main
- Water - Service Line
- Sewer - Gravity Main
- Sewer - Storm - Gravity Main
- Proposed Buildings
- Flood Area
- Existing Buildings



Town of Hemdon Master Plan
and Market Study
Preliminary Utility Constraints
Illustrative Plan Option B
12/17/2009

